UNIVERSAL MOUNT BRACKET

RELATED APPLICATIONS

This application claims the benefit of U.S. Provisional Application No. 60/462,371, filed on April 11, 2003, hereby incorporated herein in its entirety by reference.

TECHNICAL FIELD

The present invention relates to mounting brackets. More particularly, the present invention relates to mounting brackets for plasma flat panel displays.

BACKGROUND OF THE INVENTION

Plasma flat panel displays are typically found in facilities that accommodate great numbers of people on a temporary basis, such as airports, convention centers, and sport facilities. There are a large number of manufacturers of such panels. Each manufacturer typically provides mounting holes in the rear surface of the panel for mounting of the panel to a panel mount. There is no standard among panel manufacturers for the location, size, and number of such mounting bores. Accordingly, a provider of a mount for mounting the panel in a facility must accommodate almost as many mounting bore arrangements, as there are manufacturers of panels. At present, there are about 200 different panel models from a large number of panel manufacturers. This necessitates a custom set of mounting brackets for each such model. As can be easily imaged, the cost of providing such custom brackets significantly drives up the cost of the mount for mounting the panel.

Previous attempts made by others to produce a universal mounting system have not been fully successful. Previous devices typically lack the structural rigidity required to withstand seismic events such as earthquakes. In addition, such devices often have members that project outwardly past the margins of the display, leading to an unattractive, cluttered appearance.

What is needed in the industry is a relatively limited number of brackets that can accommodate the numerous number of models of panels without being customized for a

particular model. Such brackets would greatly reduce the cost of mounting the panels in a facility.

SUMMARY OF THE INVENTION

The present invention substantially meets the aforementioned needs of the industry. Two sets of mount brackets, each having two individual brackets provide for mounting more than two hundred models of panels. Each set of mount brackets has a plurality of bores defined therein, such bores being spaced and sized to accommodate the plurality of panels. Each of the brackets additionally has at least two bores defined therein for bolting the respective bracket to a mount. Use of the mount brackets of the present invention greatly simplifies mounting of a great number of different panels in a facility.

In accordance with the invention, the system includes a mount bracket set for mounting a plurality of known flat panel displays by means of a mount. Each flat panel display has a unique set of bores for mounting the flat panel display to the mount bracket set by means of bolts disposed therein. The mount bracket set includes a pair of mount brackets operably coupleable to the mount and fixedly coupleable to the flat panel display, and a substantially planar flat plate. The plate has a series of mounting bores defined therein for mounting each mount bracket independently to the flat panel display. The mounting bores are arranged so that when the mount brackets are operably coupled to the mount, a portion of the mounting bores are in registry with the flat panel display unique set of bores for mounting each flat panel display of the plurality of known flat panel displays to the mount bracket.

The system has sufficient structural rigidity to pass required seismic testing, which may include GR-63-CORE testing. In addition, the system has a pleasing aesthetic appearance without laterally projecting frames or bracket pieces.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of a first embodiment of the mount brackets of the present invention interfacing between a panel and a mount;

Figure 2A is a plan form view of the left mount bracket of Figure 1;

Figure 2B is an end view of the left mount bracket of Figure 1;

Figure 2C is a plan form view of the right mount bracket of Figure 1;

Figure 2D is an end view of the right mount bracket of Figure 1;

Figure 3A is a plan form view of a second embodiment of a left mount bracket of the present invention;

Figure 3B is an end view of the mount bracket of Figure 3A;

Figure 3C is a plan form view of the right bracket of a second embodiment of the mount bracket of the present invention; and

Figure 3D is an end view of the mount bracket of Figure 3C.

DETAILED DESCRIPTION OF THE DRAWINGS

The mount bracket set of the present invention is shown generally at 10 in Figure 1. Mount bracket set 10 has a left bracket 10A and a right bracket 10B. The mount bracket set 10 provides for a mechanical interface between the panel 12 and mount 14.

The rear side of the panel 12 is depicted. The viewing screen of the panel 12 is on the opposite facing side from that depicted.

The mount 14 includes a mount plate 16. A pair of L brackets 18 are fixedly coupled as by bolts to the mount bracket set 10. The L brackets 18 are affixed to the mount plate 16 by a pair of shiftable couplings 20. The shiftable couplings 20 provide for varying the angle between the mount plate 16 and the panel 12 so that the viewing angle of the panel 12 may be adjusted as desired.

Referring to Figures 2B and 2D, the left mount bracket 10A and the right mount bracket 10B are each formed of an elongate flat plate mounted by two lips 24 that extend along the long sides of the flat plate 22.

Referring to Figures 2A and 2C, the left mount bracket 10A and the right mount bracket 10B are mirror images of each other. Each mount bracket, 10A, 10B, has a square end 26. The opposed end is comprised of a transverse edge 28 flanked by two tails 30. Each of the tails 30 has an inward angled face 32 that preferably makes a 135° angle relative to the transverse edge 28. The preferred length of the mount brackets 10A, 10B is 19 inches from the square end 26 to the end margin 34 of the tails 30 and 18.5 inches from the square end 26 to the transverse edge 28. The mount brackets 10A, 10B are preferably about 5 inches wide.

In order to provide the universality of interfacing between the panel 12 and the mount 14, each of the mount brackets 10A, 10B has a plurality of bores defined therein. Such

bores are all disposed relative to a transverse mark 36. The transverse mark 36 is disposed 2.5 inches leftward of the square end 26 as depicted in Figures 2A and 2C.

The first of the bores are three spaced apart square holes 38. The centerline of the square holes 38 are disposed coincident with the transverse mark 36. A second set of three square holes 40 is disposed with respective holes 40 spaced apart and coincident with a transverse line that is disposed 14.0 inches left of the transverse mark 36. A pair of relatively large spaced apart bores 42 are displaced offset and upward of the centerline of the flat plate 22. The large bores are preferably about 2.5 inches in diameter. The origin of the large bores 42 are disposed 3.0 inches and 11.0 inches leftward of the transverse mark 36, respectively.

A triangular shaped bore 44 is disposed between an equal distance between the large bores 42. The triangle bore 44 is also offset from the centerline of the flat plate 22 in an upward direction as depicted in Figures 2A and 2C.

A pair of oval bores 46 are displaced leftward of the transverse mark 36 about 9.6 inches and 4.5 inches respectively. The two oval bores 46 are displaced from the centerline of the flat plate 22 in a downward direction as depicted in Figures 2A and 2C.

A plurality of circular bores of varying radii are also formed in the flat plate 22. The circular bores 48 have the sizes and dispositions as indicated in Figures 2A and 2C. The second embodiment of the mount bracket set 10 is depicted in Figures 3A-3D. Figures 3A and 3B depict a left bracket 10A and Figures 3C and 3D depict a right bracket 10B. It should be noted that left bracket 10A and the right bracket 10B are mirror images of one another.

Referring to Figures 3B and 3D, the mount brackets 10A and 10B are comprised of a flat plate 22. A single lip 24 is disposed along a longitudinal margin of the flat plate 22.

Referring to Figures 3A and 3C, it is noted that the flat plate 22 has a transverse edge 28 and an opposed tapered end 50. The transverse edge 28 has a rounded corner 52 and a substantially square corner 54.

The tapered end 50 has a transverse margin 56 extending downward from the lip 24 to approximately the centerline of the flat plate 22. A tapered margin 58 extends from the transverse margin 56 to the edge margin 60 of the flat plate 22. The tapered margin 58 preferably makes a 45° angle relative to the transverse margin 56.

A notch 62 is defined in the edge margins 60 about 7 inches from the transverse mark 36. The notch 62 preferably subtends an arc of 90° and is about ½ inch.

Three longitudinally displaced oval bores 64 are located at about 15 inches, 9 inches and 3 inches from the transverse mark 36. The oval bores 64 are displaced upward from the centerline of the flat plate 22 as depicted in Figures 3A and 3C.

Two sets of square holes 66 are defined in the flat plate 22. Each set of square holes 66 is comprised of two holes transversely displaced from one another. The first set of square holes 66 is centered on the transverse mark 36. The second set of square holes 66 is displaced leftward from the first set of square holes 66 approximately 14 inches.

Additionally, there are a plurality of circular bores 68 defined in the flat plate 22. The size of the circular bores 68 and displacement of the circular bores 68 relative to the transverse mark 36 are clearly indicated in Figures 3A and 3C.

While a number of presently preferred embodiments of the invention have been described, it should be appreciated the inventive principles can be applied to other embodiments falling within the scope of the following claims.